

# Comment on Fiducial Volume

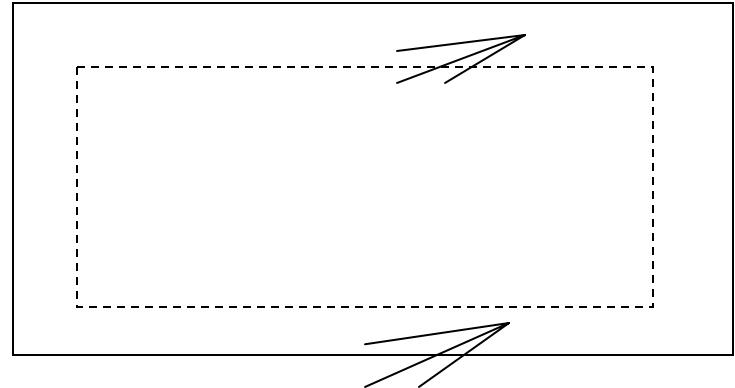
Peter Litchfield

- ❖ Fiducial volume costs statistics and\$\$\$\$\$\$\$\$\$
- ❖ Need to be careful about definition
- ❖ What is a fiducial volume for?
  - To ensure that the event can be reconstructed and that significant parts are not lost
  - To ensure that the event was produced internally and is not a background event from outside
- ❖ A vertex fiducial volume is not optimum
- ❖ Define instead a containment volume

❖ Containment volume

- Nothing wrong with the top event
- Bottom event cannot be reconstructed

❖ Define a volume such that no track in the event approaches closer than x cms to the outside of the event. Keeps more events



❖ For showers we don't need to completely contain the shower

- Hits in the shower tail are due to low energy photons with long radiation lengths
- Provided we are well beyond shower max and can define the shower direction we can ignore a few hits outside the containment volume
- Particularly if we measure deposited energy in the shower

